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EXAMINER	
ROBERTS, BRIAN S	

ART UNIT	PAPER NUMBER
2662	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/904,423	STAIGER, DIETER E.	
	Examiner	Art Unit	
	Brian Roberts	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-13 and 15-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-13 and 15-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

- The amendment filed on 9/06/2005 has been entered.
- Claims 4 and 14 have been cancelled.
- Claims 29 and 30 have been added.
- Claims 1-3, 5-13, and 15-30 are still pending.

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 5-13, and 15-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Long et al. (US 6728238).

- In reference to claim 1

Long et al. teaches a plurality of channels utilized for the transmission of voice and data. Voice is given a higher priority than data and is allowed to initially seize some

or all of the channels. (abstract) The remaining channels (subset of channels) are allocated to the data transmissions of data packets over the data channels. In Figure 9, Long et al. further teaches that the common equipment (NIC and SWM), the RT and line card are configured by the main computer via a group link and a DSL signaling channel, to open a path of the predetermined number of channels between the RT and the NIC. COTC main computer then sends a command for the RT to place the Ethernet data onto the allocated DSL data channels. (transforming a data stream into a format permitting concurrent transmission over the subset of channels) Once a voice channel becomes inactive the data is allowed to seize the newly available channels (extended subset) and data packets can be distributed over the available channels for transmission and reception. (column 5 lines 2-32)

- In reference to claim 2

In Figure 9, Long et al. further teaches transforming the data stream into Ethernet packets that are used to maximize the transmission rate characteristics of the channels in the DSL lines. (column 14 lines 24-50)

- In reference to claim 3

Long et al. further teaches de-allocating a 64 Kbps channel from the data bandwidth and reserving the channel as a clear channel for voice data. The channel will remain dedicated to the voice call as long as the call is in progress. (column 5 lines 14-18)

- In reference to claim 5-8

In Figure 4, Long et al. further teaches a CPU that inherently has a table containing information about the number of channels that are not being used by voice and that the data is allowed to seize since the voice as a higher priority than data and the maximum bit rate of the channels.

- In reference to claim 9-11

Long et al. further teaches a CPU that inherently contains a table about the overall number of channels and the maximum transmission rate of each channel. (column 11 lines 7-11)

- In reference to claim 12-13

Long et al. further teaches checking the condition of the channels to see whether they are busy and checking to see whether the channel is transmitting voice or data information. (column 5 lines 2-32)

- In reference to claim 15

In Figure 9, Long et al. further teaches a method that includes buffering the Ethernet packet in a system memory at the remote terminal. (step 574)

- In reference to claim 16 and 17

Long et al. teaches transforming the data stream into Ethernet packets data that contain information about data stream and transmitting the Ethernet packets using standard network protocols. (abstract)

- In reference to claim 18

Long et al. teaches a method that uses a CPU to perform the method of step 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3, 5-7, 9-13, 15-19 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neal et al. (US 4156796) in view of Long et al. (US 6728238)

- In reference to claim 1

O'Neal et al. discloses a communications control method comprising of the steps:

- Determining the communications lines that will be used via the line address register (column 3 line 65-68) (determining a subset of channels to be seized)
- Transforming data stream originating from the data source into a format that can be used for transmission by automatically directing storage access to one of 32, 128 byte storage blocks (abstract and column 3, lines 55-68)

(transforming the data stream to a format permitting transmission over the subset)

- Transmitting and receiving data on any one or more of 32 communications lines simultaneously. (abstract)

O'Neal et al. does not explicitly teach redistributing the transformed data stream among an extended subset of the channels if during transmission of the transformed data stream one or more additional channels becomes available.

Long et al. teaches a plurality of channels utilized for the transmission of voice and data. Voice is given a higher priority than data and is allowed to initially seize some or all of the channels. (abstract) The remaining channels (subset of channels) are allocated to the data transmissions of data packets over the data channels. Once a voice channel becomes inactive the data is allowed to seize the newly available channels (extended subset) and data packets can be distributed over the available channels for transmission and reception. (column 5 lines 2-32)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of O'Neal et al. to include redistributing the data to an extended number of channels if during transmission one or more channels become available as taught by Long et al. because it would allow for maximum use of the available data services. (column 5 lines 31-32)

- In reference to claim 2

The combination of O'Neil et al. and Long et al. teach a method that covers substantially all limitations of the parent claim. O'Neil et al. further teaches a feature "which provides an adaptive priority allocation based on the transmission rate of a given communication line. This feature allows high speed lines to be accepted for service more frequently and reduces the probability of high speed lines being overrun due to servicing of lower speed lines." (column 4, lines 15-31) This enables the utilization of the maximum transmission rate of each communication line.

- In reference to claim 3

The combination of O'Neil and Long et al. teaches a method that covers substantially all limitations of the parent claim. O'Neil further teaches a method that allows for transmit data functions to take priority over receiving data functions and supports synchronous or asynchronous operation in any combination of 32 communication lines (column 48 lines 30-68).

O'Neil et al. does not explicitly teach redistributing the data stream among a reduced subset of channels if one or more of the channels become unavailable.

Long et al. further teaches de-allocating a 64 Kbps channel from the data bandwidth and reserving the channel as a clear channel for voice data. The channel will remain dedicated to the voice call as long as the call is in progress. (column 5 lines 14-18) The data packets are distributed over the remaining available channels.

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the method of redistributing data disclosed by Long et al. to the method

of O'Neil et al. to allow the redistribution of data among the communication lines in use if one or more communication lines became unavailable because it would improve the efficiency of the data transmission and the utilization of transmission resources.

- In reference to claim 5-7

The combination of O'Neil et al. and Long et al. teach a method that covers substantially all limitations of the parent claims. O'Neil et al. further teaches a method of referencing a scan table that includes information about the data source. The table contains information about the number of communication lines to be used (column 15 lines 17-29), and the priority of the data (column 15 lines 1-16) (column 4 lines 15-32).

- In reference to claims 9-11

The combination of O'Neil et al. and Long et al. teach a method that covers substantially all limitations of the parent claim. O'Neil et al. further teaches a method of determining which communication lines are most efficient for transmission by referencing a scan table storage element that contains the data parameters for one or more of the 32 lines of the transmission facility (column 4 lines 15-32). The data parameters "include configuration information about each particular line (i.e., transmission speed, number of bits per character, synchronous or asynchronous mode, etc.)" The information is found in the scan table storage. (Figure 4)

- In reference to claim 12-13

The combination of O'Neil et al. and Long et al. teach a method that covers substantially all limitations of the parent claims. O'Neil et al. further teaches a mechanism to periodically access a scan table containing status and control information associated with each communication line. (column 1 lines 36-40). The priority of the information currently being transmitted is determined using the scan table and interrupt routines. (column 55 lines 24-68). Data transmit functions have a higher priority than data receive functions allowing for busy channels to be taken over. (column 4 lines 1-14)

- In reference to claim 15

The combination of O'Neil et al. and Long et al. teach a method that covers substantially all limitations of the parent claim. O'Neil et al. further teaches the buffering of the data stream. "Each line control block includes a two-byte buffer location for temporarily buffering data as it is being transferred from the host process or the FIG. 19 scanner". (column 6 lines 65-68, column 7 lines 1-2, Figure 3)

- In reference to claim 16 and 17

The combination of O'Neil et al. and Long et al. teach a method that covers substantially all limitations of the parent claim. O'Neil et al. further describes a data stream originating from a data source that is transformed in order to be transmitted on a plurality of communication lines.

O'Neil et al. does not explicitly disclose creating data packets out of the data stream or using standard network protocol to transmit the data.

Long et al. teaches creating data packets out of the data stream and transmitting the data utilizing a standard network protocol.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination of O'Neil et al. to create data packets as disclosed in Long et al. prior to transmitting the data, and then transmit the data using a standard network protocol in order to utilize the bandwidth of the bus more efficiently.

- In reference to claim 18

The combination of O'Neil et al. and Long et al. teach a method that covers substantially all limitations of the parent claim. O'Neil et al. further teaches that the microprocessor controlled communications multiplexer system is a user programmable device and it requires a program to be written and to be storage resistant in the user access memory before any operations can commence. O'Neil further teaches, "Once the PCS program has been prepared it may be stored on one of the Series/1 disks external to the PCS for actual use or at a later point in time." (Column 57 lines 44-58)

- In reference to claim 19

O'Neil et al. discloses a communication control device comprising:

- A bus access controller that determines the status of the communication lines; (Figure 1 and 3, column 6 lines 4-34)

- A bus channel control that allows the data to be transmitted concurrently; (Figure 1-2, column 6-8)
- Multiplexing unit for transmitting data synchronous or asynchronous over any combination of 32 communication lines. (Figure 1, column 48 lines 30-68, column 49 lines 1-12)

O'Neal et al. does not explicitly teach the bus access controller redistributing the transformed data stream among an extended subset of the channels if during transmission of the transformed data stream one or more additional channels becomes available.

Long et al. teaches a plurality of channels utilized for the transmission of voice and data. Voice is given a higher priority than data and is allowed to initially seize some or all of the channels. (abstract) The remaining channels (subset of channels) are allocated to the data transmissions of data packets over the data channels. Once a voice channel becomes inactive the data is allowed to seize the newly available channels (extended subset) and data packets can be distributed over the available channels for transmission and reception. (column 5 lines 2-32)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and bus access controller of O'Neal et al. to include redistributing the data to an extended number of channels if during transmission one or more channels becomes available as taught by Long et al. because it would allow for maximum use of the available data services. (column 5 lines 31-32)

- In reference to claim 28

The combination of O'Neil et al. and Long et al. teach a system that covers substantially all limitations of the parent claim. O'Neil et al. teaches buffers for buffering the data stream. "Each line control block includes a two-byte buffer location for temporarily buffering data as it is being transferred from the host process or the FIG. 19 scanner". (column 6 lines 65-68, column 7 lines 1-2, Figure 3)

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neal et al. (US 4156796) in view of Long et al. (US 6728238), as applied to the parent claims, and further in view of Kawakatsu et al. (US 5119367)

- In reference to claims 8

The combination of O'Neil et al. and Long et al. teach a system and method that covers substantially all limitations of the parent claims. O'Neil et al. further discloses utilizing a table to store data about the data source. O'Neil et al. teaches storing information about the number of communication lines to be used (column 15 lines 17-29), and the priority of the data (column 15 lines 1-16) (column 4 lines 15-32) in the table.

O'Neil et al. does not explicitly teach including in the table information about the maximum bit rate of the data source that can enter the network.

Kawakatsu et al. teaches storing the maximum bit rate in a table. (column 5 lines 28-33)

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in the table as taught by the combination of O'Neil et al. and Long et al. a maximum bit rate as taught by Kawakatsu et al. that the data can enter the network in order to record the traffic capacity of the network and to prevent data loss or a buffer overflow that could occur as a result of more data entering the network than the network can handle.

7. Claims 20-22 and 24-26 are rejected under 35 U.S.C 103(a) as being unpatentable over O'Neal et al. (US 4156796) in view of Long et al. (US 6728238), as applied to the parent claims, and further in view of Enstrom. (US 5530895)

- In reference to claims 20-22 and 24-26

The combination of O'Neil et al. and Long et al. teach a system that covers substantially all limitations of the parent claim. O'Neil et al. further teaches referencing a scan table that includes information about the data source and the transmission facility. The table is stored and accessed via a data and address register as shown in Figure 4 and described within the detailed description of Figure 4. The table contains the number of communication lines to be used (column 15 lines 17-29), the priority of the data (column 15 lines 1-16) (column 4 lines 15-32), and the transmission speed, number of bits per character, synchronous or asynchronous mode for each line.

The combination of O'Neil et al. and Duncanson does not explicitly teach a configuration register.

In Figure 2, Enstrom teaches a configuration register.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system and method the combination of O'Neil et al. and Duncanson to include a configuration register as taught by Enstrom because a configuration register would allow the information about the data source and transmission facility to be stored in a central location.

8. Claim 23 is rejected under 35 U.S.C 103(a) as being unpatentable over O'Neal et al. (US 4156796) in view of Long et al. (US 6728238), as applied to the parent claims, and further in view of Enstrom. (US 5530895) and further in view of Kawakatsu et al. (US 5119367)

- In reference to claims 23

The combination of O'Neil et al., Long et al., and Enstrom teaches a system and method that covers substantially all limitations of the parent claims. O'Neil et al. further discloses utilizing a table to store data about the data source. O'Neil et al. teaches storing information about the number of communication lines to be used (column 15 lines 17-29), and the priority of the data (column 15 lines 1-16) (column 4 lines 15-32) in the table.

The combination of O'Neil et al., Long et al., and Enstrom does not explicitly teach including information in the table about the maximum bit rate of the data source that can enter the network.

Kawakatsu et al. teaches storing the maximum bit rate in a table. (column 5 lines 28-33)

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in the table as taught by the combination of O'Neil et al., Long et al., and Enstrom a maximum bit rate as taught by Kawakatsu et al. that the data can enter the network in order to record the traffic capacity of the network and to prevent data loss or a buffer overflow that could occur as a result of more data entering the network than the network can handle.

9. Claim 27 is rejected under 35 U.S.C 103(a) as being unpatentable over O'Neal et al. (US 4156796) in view of Long et al. (US 6728238), as applied to the parent claims, and further in view of Cheng. (US 5694581)

- In reference to claim 27

The combination of O'Neil et al. and Long et al. teach a system that covers substantially all limitations of the parent claim. O'Neil further teaches a controller transmit interrupt structure, and transmit and receive hardware queues used in conjunction with various micro-programmed task scheduling techniques to achieve the scheduling of receive and transmit operations. O'Neil discloses the hardware in figures 1-3.

The combination of O'Neil et al. and Long et al. does not explicitly teach an arbitration controller.

In Figure 4, Cheng teaches an arbitration controller (108) that controls the priority and scheduling of data transfers.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system and method the combination of O'Neil et al. and Long et al. to include an arbitration controller as taught by Cheng because an arbitration controller could facilitate the scheduling of data transmission and transmission request.

10. Claims 29 and 30 are rejected under 35 U.S.C 103(a) as being unpatentable over O'Neal et al. (US 4156796) in view of Long et al. (US 6728238), as applied to the parent claims, and further in view of Bardotti et al. (US 3,925,766)

- In reference to claim 29

The combination of O'Neil et al. and Long et al. teaches a method that covers substantially all limitations of the parent claim.

The combination of O'Neil et al. and Long et al. does not explicitly teach checking the priority of information currently being transmitted over busy channels and selecting one or more of said busy channels to take over control from transmitting data if said priority of information currently transmitted has a lower priority.

Bardotti et al. teaches the use of interrupts in a dynamically variable priority access system with a plurality of input/output channels that allow for the use of interrupts in order to control whether a given request has interrupting power over other information exchanges in progress at a lower priority level, or whether a request, when being serviced, may be interrupted by new interrupt requests at a higher priority level and having effective interrupting power. (column 2-3 lines 59-32)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the method of interrupts in a dynamically variable priority access system with a plurality of input/output channels as disclosed by Bardotti et al. to the invention that includes initially assigning a data transfer to one or more communications lines, real-time request are prioritized over no-real-time request, high-data-rate lines are favored over low-data rate lines, and the like disclosed by the combination of O'Neil et al. and Long et al., because doing so would allow for checking the priority of data currently being transmitted over the busy channels and selecting one or more of the busy channels to take over control from transmitting data if the priority of information currently transmitted had a lower priority.

- In reference to claim 30

The combination of O'Neil et al. and Long et al. teaches a system that covers substantially all limitations of the parent claim.

The combination of O'Neil et al. and Long et al. does not explicitly teach the bus access controller checking the priority of information currently being transmitted over busy channels and selecting one or more of said busy channels to take over control from transmitting data if said priority of information currently transmitted has a lower priority.

Bardotti et al. teaches the use of interrupts in a dynamically variable priority access system with a plurality of input/output channels that allow for the use of interrupts in order to control whether a given request has interrupting power over other

information exchanges in progress at a lower priority level, or whether a request, when being serviced, may be interrupted by new interrupt requests at a higher priority level and having effective interrupting power. (column 2-3 lines 59-32)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the method of interrupts in a dynamically variable priority access system with a plurality of input/output channels as disclosed by Bardotti et al. to the invention that includes a bus controller and initially assigning a data transfer to one or more communications lines, real-time request are prioritized over no-real-time request, high-data-rate lines are favored over low-data rate lines, and the like disclosed by the combination of O'Neil et al. and Long et al., because it would allow the bus access controller to check the priority of data currently being transmitted over the busy channels and selecting one or more of the busy channels to take over control from transmitting data if the priority of information currently transmitted had a lower priority.

Response to Amendment

11. Applicant's arguments, see pages 7 and 8, filed 09/06/2005, with respect to the rejection(s) of claim(s) 4 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the newly found prior art. Long et al. (US 6728238) teaches a plurality of channels utilized for the transmission of voice and data. Voice is given a higher priority than data and is allowed to initially seize some or all of the channels. (abstract) The remaining channels (subset of channels) are

allocated to the data transmissions of data packets over the data channels. Once a voice channel becomes inactive the data is allowed to seize the newly available channels (extended subset) and data packets can be distributed over the available channels for transmission and reception. (column 5 lines 2-32)

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Kalkunte et al. (US 6108306) teaches an apparatus and method in a network switch for dynamically allocating bandwidth.
- Duncanson (US 5231649) teaches a dynamic apparatus for changing the bandwidth of a digital communication session by changing the number of channels utilized.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Roberts whose telephone number is (571) 272-3095. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BSR
10/06/2005

JOHN PEZZLO
PRIMARY EXAMINER